REMARKS

This is a full and timely response to the Non-Final Office Action (the "Action") mailed on February 24, 2012. Reconsideration of the application in light of the above amendments and the following remarks is respectfully requested.

Claim Status:

Claims 3-5 and 13-15 have been cancelled previously without prejudice or disclaimer.

By the preceding amendment, various claims have been amended. No claims are added or cancelled. Thus, claims 1, 2, 6-12 and 16-20 are currently pending for further action.

35 U.S.C. § 101:

Claim 20 was rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter because the recitation of computer readable medium could allegedly be construed as including propagation medium, such as carrier waves. (Action, p. 5). While Applicant does not necessarily agree, claim 20 has been amended to expressly recite a "non-transitory" computer readable medium. Consequently, claim 20 is now clearly directed to an article of manufacture, which is an allowed category of patentable subject matter under § 101. Therefore, following entry of this amendment, the rejection of claims 20 under 35 U.S.C. § 101 should be reconsidered and withdrawn.

As a final note, use of the term "non-transitory" does not exclude from the scope of the claims any volatile memory devices, such as Random Access Memory (RAM). Applicant does not consider a volatile memory to be transitory.

35 U.S.C. § 112:

Again, claims 1, 2, 6-12 and 16-20 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite in that the metes and bounds of the claims could not be determined. (Action, p. 5). Specifically, the Action made the following comments.

> The Board of Patent Appeals and Interference ("the board") premised its rejection on the basis that (1) the specification is silent as to what "less frequently" means, (2) it is unclear what a "subsequent pass" is, and (3) how each "pass" or "subsequent pass" relates to the availability for use of the printing elements.

(Action, p. 5).

The Action further notes that the second issue (2) has been resolved. Applicant notes that the recitation of a "subsequent pass" was previously removed from the claim. Thus, issue (3) should also have been resolved. That leaves only issue (1).

In this regard, the Action holds that the term "less frequently" is not defined in the specification. Applicant respectfully disagrees. Nevertheless, this is not the point as the metes and bounds of the term are now defined in claims themselves.

For example, claim 1 makes clear that an element which is newly made available is "used less frequently than the existing element(s) in the group that are already in use to print said image." (Claim 1). Support for the amendment to claim 1 can be found in Applicant's originally filed specification at, for example, p. 6, lines 31-34. Similarly, claim 11, without any current amendment, recites that "the one or more printing elements, newly included in the subset, [are used] to print for a predetermined duration at a frequency lower than that of one or more printing elements previously included in the subset" "of the printing elements in that group are used to print." (Claim 11).

Thus, the metes and bounds of these claims are perfectly clear to those of skill in the art. The newly available element is used or fired less frequently than elements in the group

that were already in use to print the image being printed. Thus, "less frequently" is defined in the claim relative to how often other, specified elements are already being used.

In light of these remarks, all the remaining claims are believed to be in compliance with 35 U.S.C. § 112 and notice to that effect is respectfully requested. Therefore, Applicant respectfully submits that the rejection of claims 1, 2, 6-12 and 16-20 under § 112, second paragraph, should be reconsidered and withdrawn.

35 U.S.C. § 103:

(1) Claims 1, 2, 6-8, 10-14, 16, and 18-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6,871,934 to Masuyama et al. ("Masuyama") in view of U.S. 5,673,071 to Fuse ("Fuse"). (Action, p. 6). Applicant notes that this rejection was reversed by the Board of Appeals in the Decision on Appeal mailed on December 1, 2011 (the "Decision"). Claim 1 was previously amended only to address the issues noted above under § 112, second paragraph. Consequently, the substantive scope of the claim remains essentially the same as at the time of the Decision. Therefore, Applicant believes it is entirely improper for the Action to reassert a rejection already reversed on appeal.

Claim 1:

Additionally, the cited references do not teach or suggest the subject matter claimed. Claim 1 now recites:

> A method of operating a printer, said printer comprising an array of dot printing elements extending in a first direction relative to a page to be printed and which prints at least a part of the page during relative movement between the array and the page, the array comprising a plurality of groups of elements with redundancy among the elements of the group, the method comprising,

in respect of at least one of said groups, initially commencing printing of an image using a subset of the elements in the group and, during the course of printing said image, increasing the number of elements available to print in the group;

wherein each element newly made available to the group is initially, for a period of time, used less frequently than the existing element(s) in the group that are already in use to print said image; and

wherein the number of elements in the group available to print is increased as a function of the number of firing pulses sent to the elements of the group.

(Emphasis added).

Support for the amendment to claim 1 can be found in Applicant's originally filed specification at, for example, p. 6, lines 31-34.

The current Office Action expressly concedes that "*Masuyama* does not teach wherein each element newly made available to the group is initially, for a period of time, used less frequently than the existing elements in the group already in use." (Action, p. 7). Applicant agrees.

Consequently, the Action cites to Fuse. According to the Action,

Fuse discloses a method for preparing a printhead for printing (Abstract, ***a preparatory head drive method***) wherein each element in a printhead newly made available for printing is initially, for a period of time, is use less frequently at a drive frequency lower than a normal print head drive frequency (Col 12, Rows 20-38, preparatory discharge of ink is driven at a frequency that is lower than the normal drive frequency for printing).

(Action, pp. 7-8) (emphasis added).

As cited here, Fuse teaches the following.

Characteristic values efficacious in curing the clogged nozzles were investigated, under the combination of the two control factors, the drive frequency and the head temperature rise that is performed before the clog curing operation. The results were as follows. When the head temperature rise value exceeds a certain value, the number of ink discharging actions may be reduced to zero (0) irrespective of the drive frequency. When the temperature rise value is relatively small, the number of ink discharging actions varies depending on the value of the drive frequency. The fact that when the head drive frequency is somewhat lower than the drive frequency in the normal print drive conditions, the number of ink discharging actions required till the clogged state of the nozzle is removed is reduced, was confirmed. From the experimental results, it is concluded that a preferable drive frequency ***at the time of the preparatory discharge of ink*** is a drive frequency F' (kHz) lower than the drive frequency F (kHz) in the normal print drive conditions.

(Fuse, col 12, lines 20-38) (emphasis added).

In applying Fuse, the Action has overlooked two important things. First, Fuse is directed to a "preparatory discharge" in which nozzles are primed prior to a printing operation. Thus, Fuse states "a preferable drive frequency at the time of the preparatory discharge of ink is a drive frequency F' (kHz) lower than the drive frequency F (kHz) in the normal print drive conditions." (*Id.*). Thus, the teachings of Fuse are not directed to the claimed subject matter including, "initially commencing printing of an image using a subset of the elements in the group and, *during the course of printing said image*, increasing the number of elements available to print in the group; wherein each element newly made available to the group is initially, for a period of time, used less frequently than the existing element(s) in the group that are *already in use to print said image*." (Claim 1) (emphasis added).

Additionally, the teachings of Fuse refer to clearing clogging from all the nozzles of a printhead. Fuse does not teach or suggest, that individual printing elements, "for a period of time, [are] used less frequently than the existing element(s) in the group that are already in use to print said image." (Claim 1).

For at least these two reasons, the teachings of Fuse are inapposite to the subject matter claimed. Fuse does not, consequently, remedy the admitted deficiencies of Masuyama discussed above.

The Supreme Court has addressed the issue of obviousness in *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398 (2007). The Court stated that the *Graham v. John Deere Co. of Kansas City*, 383, U.S. 1 (1966), factors still control an obviousness inquiry. Under the analysis required by *Graham* to support a rejection under § 103, the scope and content of the prior art must first be determined, followed by an assessment of the differences between the prior art and the claim at issue in view of the ordinary skill in the art. In the present case, the scope and content of the cited references does not include the claimed subject matter, particularly …

in respect of at least one of said groups, initially commencing printing of an image using a subset of the elements in the group and, during the course of printing said image, increasing the number of elements available to print in the group;

wherein each element newly made available to the group is initially, for a period of time, used less frequently than the existing element(s) in the group that are already in use to print said image; and

(Emphasis added).

Thus, the claimed subject matter provides features and advantages not known or available in the cited references. Consequently, the cited references will not support a rejection of claim 1 and its dependent claims under 35 U.S.C. § 103 and *Graham*.

Claim 11:

Claim 11 recites:

An incremental printer comprising a plurality of printing elements grouped into redundant groups, each group being arranged to print substantially different portions of a given page of a printjob, the incremental printer, when commencing a printjob, controlling at least one redundant group of printing elements such that *only a subset of the printing elements in that group are used to print, the incremental printer being further arranged to subsequently increase the number of printing elements in that group which are used to print*;

the incremental printer being further arranged, *when increasing the number of printing elements in subset of that group, to cause the one or more printing elements, newly included in the subset, to print for a predetermined duration at a frequency lower than that of one or more printing elements previously included in the subset*;

wherein the number of elements in the subset of that group is increased in dependence upon the cumulative number of firing pulses sent to the elements of the group during the printing of the printjob.

(Emphasis added).

As demonstrated above, the combination of Masuyama and Fuse does not teach or suggest the claimed printer in which

only a subset of the printing elements in [a] group are used to print, the incremental printer being further arranged to subsequently increase the number of printing elements in that group which are used to print;

the incremental printer being further arranged, *when increasing the number of printing elements in subset of that group, to cause the one or more printing elements,*

newly included in the subset, to print for a predetermined duration at a frequency lower than that of one or more printing elements previously included in the subset.
(Claim 11) (emphasis added).

Consequently, for at least the same reasons given above in favor of claim 1, the rejection of claim 1 and its dependent claims should likewise be reconsidered and withdrawn.

(2) Claims 9 and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Masuyama and Fuse further combination with the teachings of U.S. 6,705,697 to Audi et al. ("Audi"). This rejection should be reconsidered and withdrawn for at least the same reasons given above in favor of the independent claims.

(3) Claim 8 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Masuyama and Fuse further combination with the teachings of U.S. 6,238,112 to Girones et al. ("Girones"). This rejection should be reconsidered and withdrawn for at least the same reasons given above in favor of the independent claims.

Next Action:

According to the MPEP, "second or any subsequent action on the merits in any application or patent undergoing reexamination proceedings ***will not be made final*** if it includes a rejection, on newly cited art ... of ***any*** claim not amended by applicant ... in spite of the fact that other claims may have been amended to require newly cited art." M.P.E.P. § 706.07(a) (emphasis added). Applicant wishes to note that claim 11 has not been amended in this paper.

Conclusion:

In view of the preceding arguments, all claims are believed to be in condition for allowance over the references of record. Therefore, this response is believed to be a complete response to the Office Action. However, Applicant reserves the right to set forth further arguments in future papers supporting the patentability of any of the claims, including the separate patentability of the dependent claims not explicitly addressed herein. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed.

The absence of a reply to a specific rejection, issue or comment in the Office Action does not signify agreement with or concession of that rejection, issue or comment. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment. Further, for any instances in which the Examiner may wish to take Official Notice in the Office Action, Applicants expressly do not acquiesce to the taking of Official Notice, and respectfully request that the Examiner provide an affidavit to support the Official Notice taken in the next Office Action, as required by 37 CFR 1.104(d)(2) and MPEP § 2144.03.

If the Examiner has any comments or suggestions which could place this application in better form, the Examiner is requested to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

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